

Diverting Wood from Landfills for Use in Value-Added Products

North America has a vast system of hardwood and softwood forests, and the wood harvested from this resource is widely used in many applications, including lumber and other building materials, furniture, crating, containers, pallets, and other consumer goods. This array of wood products results in industrial wood by-products during the manufacturing process and also is a resource for reuse and recycling when the products are disposed of at the end of their useful lives. As part of its mission to best utilize our nation's wood resources, the Forest Products Laboratory (FPL) is involved in research and technology transfer efforts to find value-added uses for solid wood products that might otherwise be destined for landfills.

Background

A massive amount of wood residues are produced in North America each year. Studies by the U.S. Environmental Protection Agency (EPA) estimates that 6% of the municipal solid waste (MSW) stream (250 million tons generated per year) and 20% to 40% of the construction and demolition (C&D) waste stream (136 million tons generated per year) are wood. This would represent over 50 million tons of wood destined for landfills each year. Currently, relatively little of this wood is recovered prior to landfilling for reuse or recycling. These wood residues flow either into the MSW stream from homes, schools, hospitals, and businesses or into the C&D stream from construction sites, remodeling, and building demolition.

Objective

Working with a variety of industry associations, waste management companies, and government agencies, this



Figure 1. Wood from the demolition of wood-framed buildings can be recycled and reused for a variety of applications.

research and technology transfer effort will develop strategies to help reduce the amount of wood residues and products destined for landfills. This effort will help conserve wood resources and help mitigate the negative environmental impact associated with landfilling and product disposal.

Approach

To divert this wood from MSW and C&D streams into value-added uses, several potential options exist. The “three R’s” of wise material use—reduce, reuse, recycle—suggest reuse of a material as a higher use than recycling. Accordingly, attempts should be made to increase the reuse of wood-based building materials such as lumber, wood trim, and architectural items from building demolition. Those products that cannot be reused could be recycled into feedstock for particle-based building materials (such as particleboard),

mulch products, animal bedding, or other commodity products. Finally, wood not reusable or recyclable could be burned for its carbon-neutral biofuel value.

Expected Outcomes

To formalize this effort, FPL sponsored a North American Wood Waste Forum in February 2012. This forum brought together representatives from the wood industry, demolition and reuse industries, and government agencies to develop strategies to better utilize this available resource. From this initial effort, a group known as the North American Wood Recovery Group has formed and will continue work on the priorities and issues identified.

Timeline

This project is expected to be implemented over a 5-year period beginning in early 2012.

Cooperators

USDA Forest Service, Forest Products Laboratory
Forest Products Association of Canada
American Wood Council
National Demolition Association
Construction Materials Reuse Association
Building Materials Reuse Association
U.S. Army
Environmental Protection Agency

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